Natural Sciences and Engineering Research Council of Canada

2011-12
Estimates

Report on Plans and Priorities

Minister of Industry and
Minister of State (Agriculture)

Canada

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Minister's Message

As Canada's economy shows continued signs of growth following the global recession, the Harper government has a clear vision for Canada. We remain focused on creating jobs and economic growth in all regions of Canada. We remain committed to fighting protectionism, the number one impediment to global economic recovery. And we will continue to support science and technology as it drives innovation to improve quality of life for Canadians.

In the coming year, Industry Canada and its portfolio partners will seize the opportunities of the evolving global economy. We will set the conditions for industrial success by improving the policy we put in place, making strategic investments and supporting business-focused programs and services. We are working to remove impediments to competition and to create the best climate for international investment. Industry Canada will lead efforts in developing major policy initiatives to support Canada's digital economy and shape a whole-of-government strategy for federal tourism activities. The Department will also improve the cost-effectiveness and efficiency of its own operations and work with recovering industries and sectors to help assure a solid and prosperous future.

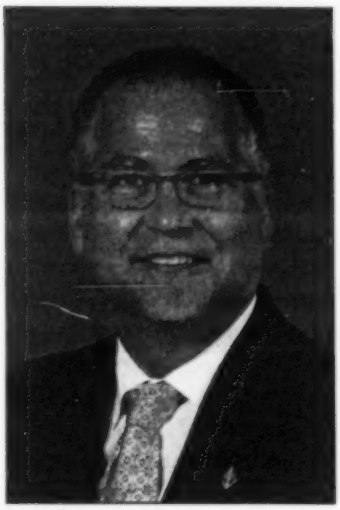
In 2011–12, the Natural Sciences and Engineering Research Council of Canada (NSERC) will maximize return on its research and innovation investments in areas of strategic importance, including information and communication technologies to power our digital economy, clean energy to power our future, and value-added products from natural resources. NSERC will provide the best Canadian scientists and engineers with funds to foster their development as global research leaders. Through its Strategy for Partnerships and Innovation, NSERC will build a competitive advantage for Canada by creating more strategic partnerships with the private sector and training more graduates with the skills needed for today's economy.

And, as always, I will work with the Industry portfolio partners, the private sector and other governments to create the fundamentals for a strong and competitive economy.

It is my pleasure to present this year's Report on Plans and Priorities for the Natural Sciences and Engineering Research Council of Canada.

Christian Paradis
Minister of Industry and Minister of State (Agriculture)

Minister of State's Message



As Minister of State for Science and Technology, it is my pleasure to present this year's Report on Plans and Priorities for the Natural Sciences and Engineering Research Council of Canada.

The economy remains our government's top priority. As Canada recovers from the global recession, we are focused on creating jobs and economic growth.

This is why we are supporting promising new research as part of Canada's Economic Action Plan: to create jobs, strengthen our economy and improve Canadians' quality of life.

Science is key to Canada's future economic growth. To remain at the forefront of the global economy, we must invest in the people and ideas that will produce tomorrow's breakthroughs.

Our investments through the Natural Sciences and Engineering Research Council are helping Canada develop, attract and retain the world's best and brightest researchers. As a result, our country is strengthening its position as a leading destination for the world's top research talent.

In the four years since Prime Minister Harper launched the Government of Canada's science and technology strategy, we have achieved a great deal, for which we as Canadians can be proud.

From Iqaluit in the Far North to rural Saskatchewan, from Victoria to St. John's and from Quebec's Eastern Townships to Northern Ontario, there are thousands of researchers pursuing some of the most important questions of our time – all with the support and encouragement of the Government of Canada. Indeed, it is through grants from the Natural Sciences and Engineering Research Council of Canada that these Canadian researchers remain on the leading edge of science and innovation.

I am most appreciative of the work that the Natural Sciences and Engineering Research Council of Canada has done, and I am looking forward to 2011–12. This year, the Council will continue to implement its Strategy for Partnerships and Innovation, which will help realize more value from the government's investment in post-secondary research and development capabilities. New program elements within the College and Community Innovation Program will boost research and development capacity at Canadian colleges, enabling them to play an even greater role in Canada's innovation system. In addition, the new Frontiers initiatives will capitalize on emerging opportunities through which Canada can benefit from its world-class capacity to take a leadership role in key areas of research and innovation.

This important work requires the ongoing engagement and support of our many stakeholders in order for us to realize its full potential. As we move into 2011–12, I will continue to work with our university partners, the private sector and all Canadians to achieve the priorities laid out in this report.

Gary Goodyear
Minister of State (Science and Technology)

Section I – Overview of the Agency

Raison d'être

The Natural Sciences and Engineering Research Council of Canada (NSERC) is a leader in making Canada a country of discoverers and innovators for all Canadians. NSERC aims to maximize the value of public investments in research and development (R&D) and to advance prosperity and quality of life in Canada. In today's highly competitive knowledge economies, NSERC plays a key role in Canada's innovation system. NSERC offers programs that support postsecondary research in the natural sciences and engineering (NSE) on the basis of national, peer-reviewed competitions. NSERC supports partnerships and innovation to make it easier for industry to collaborate with academia and access the wealth of resources Canada's first-rate academic system has to offer. NSERC develops the next generation of talented scientists and engineers through its scholarships and research stipends, and increases the visibility of Canadian research.

Responsibilities

NSERC is a departmental corporation of the Government of Canada created in 1978. It is funded directly by Parliament and reports to it through the Minister of Industry. NSERC's Council is composed of the President and up to 18 other distinguished members selected from the private and public sectors. The elected Vice-President is the Chair of Council and of its Executive Committee. The Council is advised on policy matters by various standing committees. The President of NSERC is the Chief Executive Officer. Funding decisions are approved by the President on the basis of recommendations made by peer review committees.

In fiscal year 2011-12, NSERC will invest over $1 billion in postsecondary research and training in the NSE. NSERC's budget represents 10 percent of the federal government's expenditures for science and technology (S&T), and 20 percent of all university R&D funding in the NSE.

NSERC Quick Facts

President: Dr. Suzanne Fortier

Chair: The Honourable James Edwards

Budget: $1.07 billion (2011-12)

Head Office: Ottawa, Ont.

Regional Offices:

- Moncton, N.B.
- Montreal, Que.
- Winnipeg, Man.
- Vancouver, B.C.
- Mississauga, Ont.

Employees: 376 Full-time Equivalents (FTEs)

Reach:

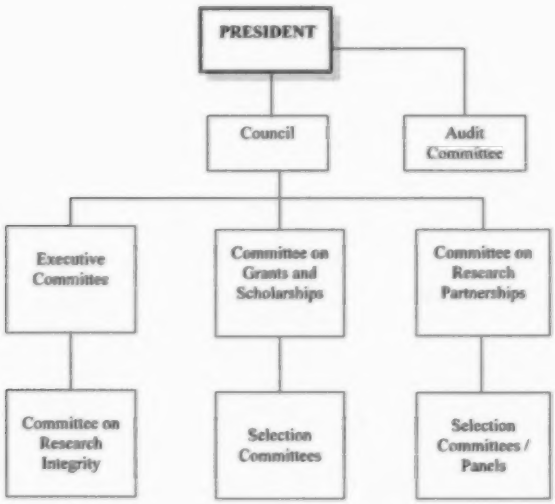
- 29,000 students and postdoctoral fellows
- 12,000 university professors
- 1,500 Canadian companies
- over 100 universities and colleges

Mandate

The functions of NSERC, based on the authority and responsibility assigned to it under the *Natural Sciences and Engineering Research Council Act* (1976-1977, c.24), are to:

- promote and assist research in the natural sciences and engineering, other than the health sciences; and
- advise the Minister in respect of such matters relating to such research as the Minister may refer to the Council for its consideration.

NSERC's Governance Structure

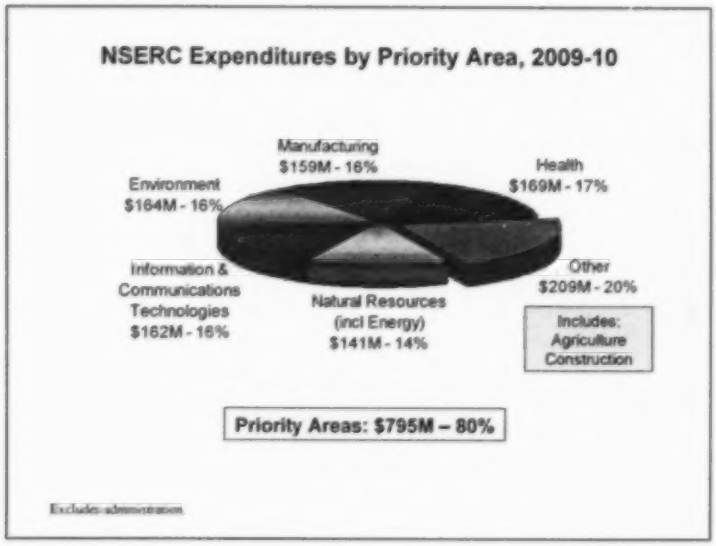


Strategic Outcomes

In order to achieve its mandate, NSERC works toward the following strategic outcomes:

1. **People: Highly skilled science and engineering professionals in Canada** – *Building our human capital in the natural sciences and engineering by attracting and developing highly skilled science and engineering professionals.*
2. **Discovery: High-quality Canadian-based competitive research in the natural sciences and engineering** – *Unleashing the power of our researchers to create knowledge and opportunities.*
3. **Innovation: Knowledge and skills in the natural sciences and engineering are transferred to, and used productively by, the user sector in Canada** – *Seizing strategic opportunities for our country and realizing the benefits of research in industry and society.*

NSERC's focus on people, discovery and innovation maps directly onto the federal science and technology (S&T) strategy which emphasizes building a People Advantage, a Knowledge Advantage and an Entrepreneurial Advantage for Canada. All of NSERC's funding relates to these advantages. In addition, the majority of NSERC's expenditures are in areas that fall under the S&T priorities (natural resources and energy, environment, information and communications technologies, manufacturing and health) established by the government. The following figure highlights NSERC's priority area expenditures in 2009-10.



Program Activity Architecture

Strategic Outcomes

1.0 People

Highly skilled science and engineering professionals in Canada

2.0 Discovery

High-quality Canadian-based competitive research in the natural sciences and engineering

3.0 Innovation

Knowledge and skills in the natural sciences and engineering are transferred to and used productively by the user sector in Canada

Program Activities

1.1 Promote Science and Engineering

Sub-Activities
- PromoScience
- Prizes

1.2 Support Students and Fellows

Sub-Activities
- Undergraduate Student Research Awards
- NSERC Postgraduate Scholarships
- Alexander Graham Bell Canada Graduate Scholarships*
- Vanier Canada Graduate Scholarships*
- Postdoctoral Fellowships
- Banting Postdoctoral Fellowships*
- Collaborative Research and Training Experience

1.3 Attract and Retain Faculty

Sub-Activities
- Canada Excellence Research Chairs*
- Canada Research Chairs*
- University Faculty Awards

2.1 Fund Basic Research

Sub-Activities
- Discovery Grants
- Special Research Opportunity Grants

2.2 Support for Research Equipment and Major Resources

Sub-Activities
- Research Tools and Instruments Grants
- Major Resources Support Grants

3.1 Fund Research in Strategic Areas

Sub-Activities
- Strategic Partnerships
- Collaborative Health Research Projects*

3.2 Fund University-Industry-Government Partnerships

Sub-Activities
- Industrial Research and Development Internships*
- Industrial Research and Development Fellowships
- Industrial Research Chairs
- Collaborative Research and Development Grants
- Networks of Centres of Excellence*
- Business-Led Networks of Centres of Excellence*

3.3 Support Commercialization

Sub-Activities
- Idea to Innovation Program
- College and Community Innovation Program*
- Centres of Excellence for Commercialization and Research*

The following program activity supports all strategic outcomes within NSERC

4.1 Internal Services

Sub-Activities
- Governance and Management Support
- Resource Management Services
- Asset Management Services

* Programs involving two or more of the federal granting agencies (NSERC, Canadian Institutes of Health Research [CIHR], Canada Foundation for Innovation [CFI], Social Sciences and Humanities Research Council [SSHRC]).

Program Activity Architecture Crosswalk

Modifications to NSERC's Program Activity Architecture (PAA) were approved by the Treasury Board Secretariat in August 2010. Changes reflect recent program evolution and better classify programs according to their primary objective. The updated PAA is consistent with the way NSERC manages its programs and allocates resources to achieve expected results.

Summary of changes:

1. The Industrial Research and Development Fellowships (IRDF) and the Industrial Research and Development Internships (IRDI) programs were moved from Program Activity (PA) 1.2 (Support Students and Fellows) to PA 3.2 (Fund University-Industry-Government Partnerships). This amendment better represents the expected results of the IRDI and IRDF programs which emphasize knowledge transfer and technology transfer through the opportunities created for skilled graduates to gain experience in industry.
2. The Industrial Research Chairs (IRC) Program was moved from PA 1.3 (Attract and Retain Faculty) to PA 3.2 (Fund University-Industry-Government Partnerships). The program's objectives best align with the expected results of PA 3.2: "Mutually beneficial collaborations between the private sector and researchers in universities, resulting in industrial or economic benefits to Canada."
3. Chairs in Targeted Areas of Research were removed from PA 1.3 (Attract and Retain Faculty) and sub-elements were moved to SO 3 to better reflect their expected results. Chairs in Design Engineering are part of the IRC program in PA 3.2 (Fund University-Industry-Government Partnerships). The expected result of the IRC program is "Enhanced research capacity resulting from the development of a critical mass, necessary for a major research endeavour in science and engineering, primarily of interest to industry." Chairs for Women in Science and Engineering and the Northern Research Chairs are now part of Strategic Partnerships within PA 3.1 (Fund Research in Strategic Areas). The expected result of Strategic Partnerships is "Research and training in targeted and emerging areas of national importance is accelerated."

Redistribution of financial resources following modification of PAA

		New Program Activity (PA) 2011-12		
	($ millions)	Fund Research in Strategic Areas	Fund University-Industry-Government Partnerships	Total
Old PA	Support Students and Fellows		11.4	11.4
	Attract and Retain Faculty	1.2	27.0	28.2

Amounts represent the forecast spending for 2010-11 and the planned investment for the three-year reporting period from 2011-12 to 2013-14.

Planning Summary

Financial Resources ($ millions)[†]		
2011-12	**2012-13**	**2013-14**
1,066.6	1,024.3	1,010.3

[†] The $56.4 million decrease in planned financial resources between 2011-12 and 2013-14 results from the temporary funding from *Budget 2009* (Canada's Economic Action Plan) that will decrease in 2011-12 and cease in 2012-13, and from targeted funding scheduled to end in 2012-13. See the Expenditure Profile section of this report for further detail on NSERC's budget increases and decreases over this timeframe.

Human Resources (Full-time Equivalents – FTEs)		
2011-12	**2012-13**	**2013-14**
376	376	376

Strategic Outcome 1.0: People – Highly skilled science and engineering professionals in Canada					
Performance Indicator			**Target**		
Percentage of population with higher education in the NSE vs. G8 countries			Maintain or exceed current ranking (Canada was sixth in 2006[1])		
Program Activity[2] ($millions)	**Forecast Spending 2010-11**	**Planned Spending**			**Alignment to Government of Canada Outcomes[3]**
		2011-12	**2012-13**	**2013-14**	
1.1 Promote Science and Engineering	5.7	5.5	5.5	5.5	Innovative and Knowledge-based Economy
1.2 Support Students and Fellows	156.5	149.6	143.6	143.6	
1.3 Attract and Retain Faculty	145.1	152.9	152.6	152.5	
Total Planned Spending for SO 1.0		308.0	301.7	301.6	

Note: Please refer to the Expenditure Profile section for explanations on spending trends.

[1] NSF Science and Engineering Statistics 2010, table 2-35: first university degree selected by country

[2] For program activity descriptions, please access the Main Estimates on-line at http://www.tbs-sct.gc.ca/est-pre/estime.asp

[3] While outcomes of the activities supported can affect several of the Government of Canada outcomes such as strong economic growth, income security and employment for Canadians, a clean and healthy environment, healthy Canadians with access to quality health care, and safe and secure communities; "Innovative and Knowledge-based Economy" is most appropriate to link NSERC's resources and results.

Strategic Outcome 2.0: Discovery – High quality Canadian-based competitive research in the natural sciences and engineering					
Performance Indicator			**Target**		
Average number of times that Canadian papers in the NSE are cited by other researchers (Average Relative Citation factor of Canadian publications in the NSE — comparison with other countries)			Maintain top 20 world ranking (Canada was 16th in 2008[4])		
Program Activity ($millions)	**Forecast Spending 2010-11**	**Planned Spending**			**Alignment to Government of Canada Outcomes**
		2011-12	**2012-13**	**2013-14**	
2.1 Fund Basic Research	357.6	358.4	359.3	359.3	Innovative and Knowledge-based Economy
2.2 Support for Research Equipment and Major Resources*	44.9	37.9	36.5	22.6	
Total Planned Spending for SO 2.0		396.4	395.8	381.9	

Note: Please refer to the Expenditure Profile section for explanations on spending trends.

* Planned but unspent grant funds, stemming typically from award changes or cancellations, will be expended through NSERC's Research Tools and Instruments Grants Program.

Strategic Outcome 3.0: Innovation – Knowledge and skills in the natural sciences and engineering are transferred to and used productively by the user sector in Canada					
Performance Indicator			**Target**		
Percentage growth in the annual number of partner companies			Greater than five percent per year		
Program Activity ($millions)	**Forecast Spending 2010-11**	**Planned Spending**			**Alignment to Government of Canada Outcomes**
		2011-12	**2012-13**	**2013-14**	
3.1 Fund Research in Strategic Areas	134.8	116.5	107.3	97.1	Innovative and Knowledge-based Economy
3.2 Fund University-Industry-Government Partnerships	153.4	167.1	160.0	170.2	
3.3 Support Commercialization	53.9	54.8	36.9	36.9	
Total Planned Spending for SO 3.0		338.4	304.2	304.2	

Note: Please refer to the Expenditure Profile section for explanations on spending trends.

[4] Observatoire des sciences et des technologies, 2008.

Strategic Outcome 4.0: Internal Services				
Program Activity ($millions)	Forecast Spending 2010-11	Planned Spending		
		2011-12	2012-13	2013-14
4.1 Internal Services‡	26.4	23.9	22.6	22.6

‡ Internal Services include activities and resources that apply across NSERC. These do not include activities and resources provided for specific programs.

Total Planned Spending	1,066.6	1,024.3	1,010.3

Contribution of Priorities to Strategic Outcomes

Operational Priorities			
Priority 1. People Advantage: Inspire new generations of students to pursue careers in science and engineering, and provide them with the means to develop their full potential.			
Type	Ongoing	**Link to Strategic Outcomes**	1.0 People

Why this is a priority

- To build a stronger culture of science and innovation in our country recognizing that an innovative and competitive society relies on the creativity and skills of highly trained people in the NSE, as identified in the federal S&T strategy;
- To ensure Canada has a supply of highly qualified people (HQP) by supporting university students and fellows during their training in research and by providing them with opportunities to develop professional, job-ready skills and to experience enriched and varied research environments;
- To encourage young people to study science and engineering and become the talented science and technology graduates Canada needs to compete and win as identified in the federal S&T strategy; and
- To position Canada as a destination of choice for top foreign students and researchers, as many foreign students will elect to stay in Canada at the end of their studies.

Plans for meeting the priority

- Attract the best and the brightest to pursue science and engineering studies in Canada, train advanced researchers for jobs of the future, and prepare the next generation of scientific experts, innovators and entrepreneurs. (Ongoing with new elements)
  - Implement the Banting Postdoctoral Fellowships program; and
  - Expand Canadian company involvement in providing training experience for students by increasing participation in NSERC's industrial scholarship programs.

Priority 2. Knowledge Advantage: Lead the advancement of knowledge in science and engineering, and ensure that Canadian scientists and engineers are leaders and key players in a global knowledge community.			
Type	Ongoing	**Links to Strategic Outcomes**	1.0 People 2.0 Discovery

Why this is a priority

- To advance the Knowledge Advantage identified in the federal S&T strategy by maintaining the capacity to conduct world-class research in the broad areas of NSE;
- To support excellence and seed the creativity that will lead to future innovation; and
- To capitalize on benefits arising from Canadians leading or participating in international collaborations; and
- To increase productivity, innovation, jobs, and prosperity.

Plans for meeting the priority

- Enhance Canada's standing in world science, encourage creativity and research at the leading edge of world knowledge, and maximize impact by enabling researchers to pursue opportunities for transformational discoveries. (Ongoing with new elements)
  - Increase the number of Discovery Accelerator Supplements awarded each year; and
  - Implement the Discovery Frontiers Initiative.

Priority 3. Entrepreneurial Advantage: Connect and apply the strength of the academic research system to addressing the opportunities and challenges of building prosperity for Canada.

Type	Ongoing	**Link to Strategic Outcomes**	3.0 Innovation

Why this is a priority

- To connect Canada's research strength to industry to promote innovation and prosperity in Canada. Canada ranks first in the G8 for R&D performed in the higher-education sector as a percentage of Gross Domestic Product (GDP).[5] Innovation and prosperity in Canada can be enhanced by more effectively connecting this research strength to industry, particularly in areas of strategic importance.
- To stimulate business investment in R&D in Canada. Business investment in R&D (BERD) in Canada is low relative to other OECD countries with the majority of private sector R&D investment in Canada being concentrated in a small number of large companies.
- To enable innovation to enhance the productivity of Canadian industry. Canadian industry has a productivity gap with other leading nations, one that can partly be addressed through innovation.[6]

Plans for meeting the priority

- Continue to implement NSERC's Strategy for Partnerships and Innovation (SPI). The Strategy, which was recognized in *Budget 2010*, puts forth a four-point plan to enhance the quality and quantity of industry-academic research partnerships and accelerate innovation so that Canada realizes more value from the government's investment in postsecondary R&D capabilities; (Previously committed to, with new elements)
  - Build sustainable relationships by facilitating interactions between industry and post-secondary researchers, for example through the new Innovation Frontiers, the Collaborative Research and Development (CRD) Grants, Engage Grants, Interaction Grants and the College and Community Innovation (CCI) Program;
  - Streamline and facilitate access to NSERC's existing innovation-oriented policies and programs;

[5] Government of Canada Science and Technology Data – 2007 (March 2009)

[6] Recent analyses and strategies the Federal S&T Strategy [2007], the Science and Technology Innovation Council [STIC] State of the Nation Report [2008], the Council of Canadian Academies [CCA] Innovation and Business Strategy: Why Canada Falls Short [2009] indicate that Canada needs to better leverage its R&D and accelerate innovation and that public-private R&D partners will help achieve this goal.

- Connect people and skills by advancing "innovation skills" in students and facilitate their hiring; and
- Focus on national priorities, for example through strategic partnership programs.

Management Priorities

Priority 4. Demonstrate NSERC's accountability and how the results of its investments in Canadian research and training benefit Canadians.

Type	Ongoing	**Links to Strategic Outcomes**	1.0 People 2.0 Discovery 3.0 Innovation

Why this is a priority

- To demonstrate accountability and stewardship in the management of Canada's investments in S&T;
- To increase effectiveness and client service; and
- To measure the results and impacts of the government's investments.

Plans for meeting the priority

- Improve governance and management practices by building stronger links between strategic, operational, financial and human resources planning; (Previously committed to, with new elements)
- Continue to develop a comprehensive risk management framework which will provide valuable input to our decision making and integrated planning exercises; (Previously committed to)
- Continue to lever information management and technology systems to further improve efficiency and client service; (Previously committed to)
- Continue to collaborate with SSHRC, CIHR and CFI to develop program and policy-related content for the agencies' new joint Web site, Research Funding Collaboration, hosted by science.gc.ca; (New) and
- Develop new performance measurement and program evaluation approaches and methods for measuring and reporting the impact and outcome of investments in research and advanced training. (Previously committed to)

Priority 5. Increase visibility of Canadian research.

Type	Ongoing	**Links to Strategic Outcomes**	1.0 People 2.0 Discovery 3.0 Innovation

Why this is a priority

- To demonstrate value of federal government investment in science and technology to Key Opinion Leaders (KOLs) and to demonstrate to industry that there is value in partnering with federally supported researchers to achieve mutually beneficial objectives.

Plans for meeting the priority

- To demonstrate relevance and acknowledge the new economic environment, NSERC will focus on communicating concrete results and quantifiable economic benefits, including job creation; (Previously committed to, with new elements) and
- NSERC will place a greater emphasis on monitoring the effectiveness of new messaging and tools. (Previously committed to, with new elements)

Risk Analysis

In alignment with Treasury Board Secretariat guidelines and management frameworks, NSERC has developed its 2010-11 Corporate Risk Profile (CRP) to formally identify, assess and mitigate corporate risks.

Operating Environment
While NSERC administers a significant budget, the agency's overall risk level compared to other government entities is considered low, in terms of continuity of government operations and the maintenance of services to, and protection of interests of, the Canadian public. This assessment is supported in a 2007 *Blue Ribbon Panel Report on Grants and Contributions*[7] which noted the rigorous system of oversight used by the federal granting agencies and deemed their record of performance to be high by international standards.

Operational Risks
Some risks were identified which relate to program strategies, planning and delivery and these were considered medium or low. These were linked, for example, to NSERC's ability to align new opportunities to strategic priorities and to deliver on its objectives to increase non-academic partnerships. In the first case, the risk was considered low because NSERC's strategic outcomes of People, Discovery and Innovation, which frame all its activities, are completely aligned with the People, Knowledge and Entrepreneurial advantages and objectives of the *Federal S&T Strategy*. With respect to partnership objectives, NSERC has an established and well-communicated partnership strategy, and a process to set expectations with partners at the program delivery level. In addition, NSERC has some flexibility to adjust program funding allocations to respond quickly to new partnership opportunities.

Issues related to peer review capacity (i.e., being able to recruit the required number of qualified peer reviewers on an ongoing basis) and process (i.e., ensuring that peer review is perceived as credible, transparent and equitable in the awarding of grants and scholarships) were assessed as medium risks. NSERC has practices to mitigate these risks such as publishing the membership of its independent peer review committees; transparent processes based on documented program descriptions, selection criteria and evaluation procedures; and an established appeal process. Peer review capacity is ensured through a historically successful and well-established peer reviewer recruitment and retention process, and initiatives to limit the number of requests made to reviewers and to avoid reviewer fatigue.

Management Risks
In the recently developed corporate risk profile, risks that were considered high were:

- Human Resource Capacity — The risk that the organization does not have or cannot recruit/retain the required human resources capacity (i.e., number and/or skill sets) to deliver its mandate effectively;

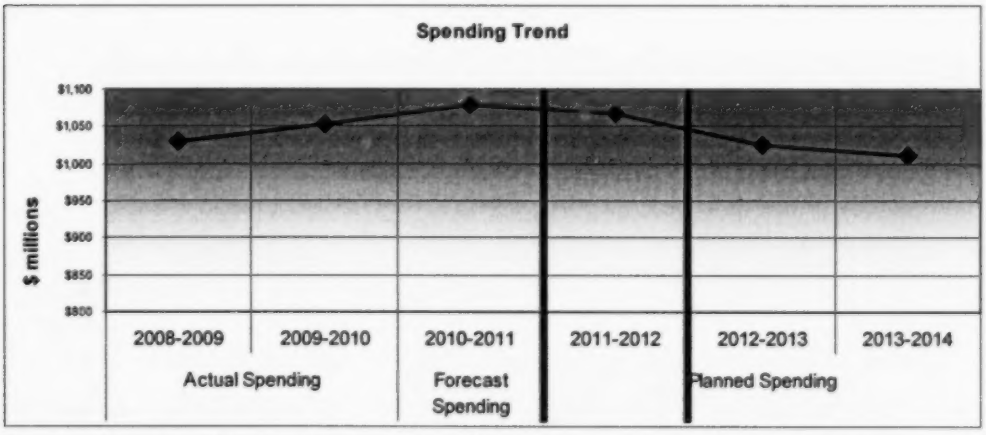
[7] *From Red Tape to Clear Results: The Report of the Independent Blue Ribbon Panel on Grants and Contribution Programs*, December 2006

- Information Technology Innovation — The risk that the organization does not adequately leverage technology to support the needs of the organization, to promote efficiency, or to innovate (e.g., services and processes);
- Operating Budget Management — The risk that the organization is ineffective in monitoring operating budgets and making informed and/or accurate decisions;
- Project Management Capability — The risk that the organization does not have the required capabilities, tools or dedicated expertise to effectively manage key projects; and
- Sufficiency of Operating Funding — The risk that allocated operating funding is not sufficient to support program/project delivery requirements.

A number of mitigation measures are already in place. For example, there are established budgeting processes for mid-year and year-end reviews, budget and expenditure reports are accessible for each directorate, and a salary management system is in place. Over the next 12 months, NSERC will further develop risk mitigation and management strategies for these risks.

Expenditure Profile

For the 2011-12 fiscal year, NSERC plans to spend $1,066.6 million to meet the expected results of its program activities and contribute to its strategic outcomes. The figure below illustrates NSERC's spending trend from 2008-09 to 2013-14.



The spending trend figures do not account for any potential new future Budget investments in NSERC.

Spending increase:
From 2008-09 to 2010-11, the following new investments were made:

- $34 million increase to core funding for collaborative research that directly contributes to the knowledge and innovation needs of Canada's automotive, manufacturing, forestry and fishing industries (*Budget 2008*);

- $19.1 million in 2008-09 and 2009-10, respectively, for the Centres of Excellence for Commercialization and Research (CECR) program (*Budget 2007*);
- $7.0 million in 2008-09 and $7.4 million in 2009-10 for the Business Led Networks of Centres of Excellence (BL-NCE) program (*Budget 2007*);
- $4.2 million in 2008-09 and $6.9 million in 2009-10, for the Industrial R&D Internships (IRDI) program as part of Canada's Economic Action Plan (*Budget 2007* and *Budget 2009*);
- $14 million in 2009-10, $14 million in 2010-11, and $7 million in 2011-12 for a temporary expansion of the Canada Graduate Scholarships (CGS) program as part of Canada's Economic Action Plan (*Budget 2009*);
- $2.1 million in 2008-09, $14.6 million in 2009-10, and $15 million in 2010-11 for the College and Community Innovation (CCI) program (*Budget 2007 and Budget 2010*);
- $11 million in 2009-10 for the Canadian Light Source (*Budget 2008*);
- $13 million in 2010-11 for advanced research and for the Strategy on Partnerships and Innovation *(Budget 2010);*
- $1.6 million in 2010-11 for the new Banting Postdoctoral Fellowships Program *(Budget 2010)*; and
- $10.8 million in 2010-11 for the Canada Excellence Research Chairs *(Budget 2008)*.

Spending decrease:
Over the period covered by this report, decreases resulted from the following:

- In 2008, NSERC conducted a comprehensive review of the funding, relevance and performance of all its programs. The conclusions of this Strategic Review were accepted by the Treasury Board and reflected in *Budget 2009*. As a result, NSERC's core funding declined by $11.2 million in 2009-10 and $23.3 million in 2010-11 and will decline by $34.7 million in subsequent years (relative to 2008-09).
- The BL-NCE program is scheduled to sunset in 2012-13. This program supported four industry-led networks over five years with a total budget of $34.8 million earmarked in Budget 2007 and administered by NSERC.
- The last portion of the $38.5 million received by NSERC as part of Canada's Economic Action Plan for additional Canada Graduate Scholarships and Industrial Research and Development Internship awards will be spent in 2011-12.

NSERC's Grants and Scholarships Transfer Payment Program encompasses a broad suite of mechanisms that deliver on NSERC's People, Discovery and Innovation strategic outcomes. Over time, funds may be reallocated among the various grants and scholarships mechanisms to respond to changing circumstances. For example, NSERC plans to partially respond to the expected increased participation of industry in the Strategy for Partnerships and Innovation (SPI) by reallocating some of the funds from the Strategic Partnerships Programs (networks and projects) to program elements such as Engage grants, Collaborative Research and Development (CRD) grants and Industrial Research Chairs (IRC). In addition, starting in 2011, Strategic Partnerships will focus

only on four target areas, compared to the current seven. These changes contribute to the decrease in planned spending for Program Activity 3.1 and the increased planned spending for Program Activity 3.2 over the planning period. For Program Activity 3.3, it is important to note that $18M in anticipated funding for the Centres of Excellence for Commercialization and Research (CECR) Program is not currently included in the planned spending for 2012-13 and subsequent years. The CECR Program, which became permanent in 2009, has an annual budget of $18M per year but formal inclusion of these funds in NSERC's reference levels takes place after formal approval of spending authorities has been obtained from the Treasury Board following each competition for CECR awards.

Estimates by Vote

For information on our organizational votes and/or statutory expenditures, please see the 2011–12 Main Estimates publication. An electronic version of the Main Estimates is available at http://www.tbs-sct.gc.ca/est-pre/index-eng.asp.

NSERC's administration costs are less than five percent of its total budget. This is low compared to similar agencies in Canada and around the world. NSERC is able to maintain this low level of overhead expenses by extensively using volunteer committee members and peer reviewers, obtaining agreement from Canadian universities that receive NSERC funds to participate in their administration, and sharing the costs of common administrative services through a successful partnership with SSHRC.

Section II – Analysis of Program Activities by Strategic Outcome

Strategic Outcome 1.0 – People: Highly skilled science and engineering professionals in Canada

Successfully conducting research and putting new knowledge to work requires a pool of highly qualified people. Universities offer the best training ground for the next generation of researchers—our human capital—whether they ultimately work in industry, in postsecondary institutions or in the public sector. NSERC's people-oriented programs promote science and engineering to a diverse audience, support undergraduate, graduate and postdoctoral research experience and training in academic and industrial settings, and attract highly qualified faculty to our universities.

Program Activity 1.1 Promote Science and Engineering					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
1	$5.5	1	$5.5	1	$5.5
Program Activity Expected Results		**Performance Indicators**		**Targets**	
Student interest in research in the sciences, math and engineering is encouraged		Percentage of science promotion projects that successfully complete the planned activity		Greater than 80 percent	

Program Activity Summary: To ensure that Canada has an ongoing supply of future discoverers and innovators, NSERC encourages interest in science and engineering in Canadian youth and in the broader population.

Subactivities include:

- PromoScience
- Prizes

Planning Highlights:

— PromoScience:

- NSERC will focus support on target groups that are under-represented in the NSE (e.g., women, Aboriginals) in its PromoScience grants. These grants

enable community-based organizations, museums, science centres, non-government organizations and universities to promote science and engineering to youth.

Benefits to Canada:
Canada is ranked 21st among OECD countries in the number of science and engineering degrees as a percentage of new degrees.[8] The federal S&T strategy identifies the need to build a stronger culture of science and innovation in our country and to encourage young people to study science and engineering. Prizes raise the awareness of Canadians about the importance of achievements in science and engineering research. Activities funded under the PromoScience program provide an early exposure to S&T to young people to spur their interest. Particular emphasis is placed in the participation of under-represented groups (e.g., Aboriginals, women).

Program Activity 1.2 Support Students and Fellows					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
29	$149.6	29	$143.6	29	$143.6

Program Activity Expected Results	Performance Indicators	Targets
A supply of highly-qualified Canadians with leading-edge scientific and research skills for Canadian industry, government and universities	Percentage of students supported that are actively employed in Canada after graduation	75 percent
	Average completion rates among NSERC award recipients vs. general NSE student population	Completion rate 10 percent greater than NSE student population

Program Activity Summary: This program activity supports the training of highly qualified people through programs of scholarships, fellowships and student stipends. Support is provided at all levels of university studies from undergraduate awards for four-month research terms to postdoctoral fellowships in academia or industry.

Subactivities include:

- Undergraduate Student Research Awards (USRA)
- NSERC Postgraduate Scholarships (PGS)
- Alexander Graham Bell Canada Graduate Scholarships (CGS)
- Vanier Canada Graduate Scholarships (Vanier CGS)
- Postdoctoral Fellowships (PDF)
- Banting Postdoctoral Fellowships (Banting PDF)

[8] Science and Technology Innovation Council (STIC) State of the Nation Report (2008), Talent Indicators Assessment.

- Collaborative Research and Training Experience (CREATE)

Planning Highlights:

— Banting Postdoctoral Fellowships:

- Together with SSHRC and CIHR, NSERC is implementing the federal government's new prestigious program, the Banting Postdoctoral Fellowships, announced in *Budget 2010*. Banting Fellowships will attract the world's top talent to conduct research in Canada. The program also increases NSERC's capacity to foster international mobility in research.

— Collaborative Research and Training Experience Program:

- NSERC will continue to implement measures to foster a strong employer/industry-centric component in the CREATE program to ensure optimal impact in relation to NSERC's Strategy for Partnerships and Innovation. Such impacts include the development of highly qualified people with professional, job-ready skills and experience of enriched and varied research environments.

Benefits to Canada:
Student scholarship programs are a vital part of NSERC's efforts to ensure that Canada produces a sufficient number of people with advanced degrees in science and engineering. This is essential to our future competitiveness, as is pointed out in the federal S&T strategy and *Budget 2009*. By accessing international scientific research and training, the Banting Fellows, Vanier Canada Graduate Scholars and Alexander Graham Bell Canada Graduate Scholars who receive Foreign Study Supplements will contribute to strengthening the potential for collaboration between Canadian universities and other affiliated research institutions outside of Canada.

Program Activity 1.3 Attract and Retain Faculty					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
10	$152.9	10	$152.6	10	$152.5
Program Activity Expected Results		Performance Indicators		Targets	
Enhanced research capacity in science and engineering		Number of foreign-educated new applicants to NSERC's Discovery Grants program		Greater than 100 per year	
		Number of NSERC-funded professors leaving the country		Less than 100 per year	
Canada Research Chairs Database					

Program Activity Summary: This program activity aims to attract and retain faculty in Canada. Faculty chairholders in the natural sciences and engineering fulfil three crucial functions: 1) they build capacity in areas of strategic relevance; 2) they conduct leading-edge research; and 3) they ensure that students receive the best possible training.

Subactivities include:

- Canada Excellence Research Chairs (CERC)
- Canada Research Chairs (CRC)

Planning Highlights:

— Canada Excellence Research Chairs:

- Among the 19 inaugural recipients of the prestigious Canada Excellence Research Chairs (CERCs) announced in May 2010, 13 conduct research in the natural sciences and engineering. They will be launching their research programs in Canada over the coming year and accelerating research in the priority areas of the federal S&T strategy.

— Canada Research Chairs:

- Following on the 10th-year summative evaluation of the Canada Research Chairs Program completed in 2010-11, the program's terms and conditions will be renewed, and, where warranted, program changes will be implemented.

Benefits to Canada:
Top scientists and engineers serve as magnets that attract other high-calibre researchers and students to, or remain in, Canada so that they can work with the best researchers in the world. These top scientists and engineers enhance the research environment in Canada and the training of highly qualified people.

Strategic Outcome 2.0 – Discovery: High quality Canadian-based competitive research in the natural sciences and engineering

The knowledge generated through basic research provides a critical foundation for all scientific and technological advances. NSERC's discovery-based programs support long-term, ongoing programs of research, shorter term research projects, the acquisition of research equipment and access to national research facilities. The high quality and impact of Canadian research is evident in its ranking among top countries in terms of the average number of times Canadian papers are cited by other researchers.

Program Activity 2.1 Fund Basic Research					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
53	$358.4	53	$359.3	53	$359.3

Program Activity Expected Results	Performance Indicators	Targets
The discovery, innovation and training capability of university researchers in natural sciences and engineering is enhanced by the provision of support for ongoing programs of basic research	World ranking in number of NSE publications	Maintain top 10 world ranking (Canada was 7th in 2008[9])
	Percentage of funds spent on training of students and postdoctoral fellows	35 percent
	Higher education expenditure on R&D (HERD) as a percentage of gross domestic product (GDP) compared to G8 countries	Maintain current world ranking (Canada was first in 2008 among G8 countries[10])

Program Activity Summary: This program activity promotes and enables global excellence in discovery research. Having a solid capacity for basic research across a broad range of traditional fields from astronomy, biology, chemistry, electrical engineering, mathematics, mechanical engineering, physics and psychology to newly established fields like genomics, nanotechnology and quantum computing ensures that Canada remains at the leading edge of knowledge creation. It also ensures that Canada can access and exploit S&T knowledge developments from other countries.

Subactivities include:

- Discovery Grants Program (DGP)

Planning Highlights:

— Discovery Grants Program:

- **Discovery Accelerator Supplements (DAS)**
  - NSERC will increase the number of Discovery Accelerator Supplements awarded each year as per the recommendation of the International Review of the Discovery Grants Program. The DAS will provide substantial and timely resources to up to 375 researchers who have a well-established research program and who show strong potential to become international leaders in their respective area of

[9] Observatoire des sciences et des technologies, 2008.
[10] OECD, Main Science and Technology Indicators database, May 2010

research. DAS support enables the researcher to capitalize on an opportunity, such as a recent research breakthrough, a paradigm shift or a new strategy to tackle a scientific problem or research question.

NSERC will continue to award at least two-thirds of its Discovery Accelerator Supplements to researchers with research programs that impact the government priority areas identified in the federal S&T strategy: environmental science and technologies; natural resources and energy; health and related life sciences and technologies; and information and communication technologies.

- **Discovery Frontiers**

  - In October 2010, NSERC launched the Discovery Frontiers Initiative to support large-scale transformative research activities that address challenges and seize leadership opportunities in areas of national importance. Strong linkages with top international groups will be required.

    The first call for proposals is focused on Northern Earth System Research. It will address problems that have been defined with input from the northern community and will support Canada's leadership in the North.

Benefits to Canada:
Global excellence in discovery research allows Canada to participate as a full player in the international research community. Canadian researchers are developing new knowledge and are also accessing and exploiting knowledge developed outside Canada, thereby generating new opportunities for innovation. National governments around the world recognize the critical role a basic research foundation plays in maintaining a competitive economy. All OECD governments support basic research in their universities. Now fully implemented, NSERC's new peer review process and structure for the Discovery Grants Program will continue to support excellence and better respond to the changing research environment which involves more multidisciplinary research.

Program Activity 2.2 Support for Research Equipment and Major Resources					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
10	$37.9	10	$36.5	10	$22.6
Program Activity Expected Results		Performance Indicators		Targets	
The discovery, innovation and training capability of university researchers in the		Average number of researchers benefiting from equipment awards		Over 1,000	

NSE is supported by their access to research equipment and major regional or national research facilities	Average number of researchers benefiting from a Major Resources Support award	Greater than 50

Program Activity Summary: NSERC programs in this area help support the maintenance and operation of research equipment and major research resources. Funds are also used to facilitate researchers' access to major research facilities in Canada and around the world.

Subactivities include:

- Research Tools and Instruments (RTI)
- Major Resources Support (MRS)

Planning Highlights:

— Research Tools and Instruments:

- NSERC will continue to foster and enhance the discovery, innovation and training capability of university research in the natural sciences and engineering by supporting the purchase of research equipment and installations (smaller than funded by the Canada Foundation for Innovation [CFI]) through the Research Tools and Instruments Grants Program.

— Major Resources Support:

- The Major Resource Support program facilitates access of Canadian researchers to more than 50 experimental and thematic facilities. NSERC, together with the CFI, will continue to ensure effective operational support of national research facilities to avoid redundancy between the MRS and CFI programs, such as the CFI Major Science Initiatives program.

Benefits to Canada:
Top researchers need state-of-the-art equipment and facilities to carry out research at world-class levels. Access to top facilities plays an important role in attracting the best minds to Canada and keeping them here.

Strategic Outcome 3.0 – Innovation: Knowledge and skills in the natural sciences and engineering are transferred to and used productively by the user sector in Canada

Turning knowledge into innovative products and services forms the basis for a competitive economy. Federal investments play an important role in stimulating innovation through the promotion of university-industry and college-industry partnerships, technology transfer

activities and the training of people with appropriate scientific and business skills. Equally important is focusing research resources on areas that will have the greatest economic, social or policy impact.

NSERC's **Research Partnerships Programs** take advantage of Canada's robust capacity in research and offer a means to connect and apply knowledge and technologies generated in universities and colleges to industry and government end users, and to connect industry challenges and training capacity to universities and colleges. NSERC's integrated set of partnerships programs ensure that support is available for the various aspects of applying research talent, expertise and research results to the benefit of Canada. Targeted projects in strategic areas build capacity and accelerate research and training in topics of identified national interest and concern. Engage grants build new academic–industry partnerships and Collaborative Research and Development Grants sustain these relationships by encouraging academic researchers and graduate students to collaborate with industry in joint research projects to address identified industrial challenges. Commercialization programs facilitate the transfer of research results into the economy and ease business access to the expertise and specialized facilities within colleges and universities. NSERC's Strategy for Partnerships and Innovation has increased the reach and impact of NSERC's Research Partnerships Programs by building innovation in Canada and responding to the call to action presented in the Science, Technology and Innovation Council's (STIC) State of the Nation 2008 report (May 2009) and the Council of Canadian Academies Innovation and Business Strategy: Why Canada Falls Short (April 2009).

Program Activity 3.1 Fund Research in Strategic Areas					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
22	$116.5	22	$107.3	22	$97.1
Program Activity Expected Results		Performance Indicators		Targets	
Research and training in targeted and emerging areas of national importance is accelerated		Percentage of researchers applying for a strategic grant for the first time (or who have never applied in a specific area)		Five percent	

Program Activity Summary: This program activity funds research in areas of national importance and in emerging areas that are of potential significance to Canada. The programs require researchers to work with partners who can use and exploit the results of their projects.

Subactivities include:

- Strategic Partnerships Programs
- Collaborative Health Research Projects (CHRP)

Planning Highlights:

— Strategic Partnerships Programs:

- It is NSERC's practice to renew its strategic target areas every five years. The new target areas were announced in November 2010. Starting in 2011-12, NSERC will support Strategic Projects and Strategic Networks in four priority areas: Environmental science and technologies, information and communication technologies, manufacturing, and natural resources and energy. The new target areas align with the priorities of the federal S&T strategy and the industry sectors identified in *Budget 2008* as priorities for NSERC investment.

- By supporting strategic partnerships in these four areas, NSERC will focus resources on areas most relevant to its mandate (environmental science and technologies, information and communications technologies and natural resources and energy) and the *Budget 2008* priority area of manufacturing. The four target areas also effectively address the other priority areas of *Budget 2008* (Forestry, Fisheries and Automotive). This focusing will support growth in the industry-driven programs associated with the NSERC Strategy for Partnerships and Innovation, while maintaining the strategic partnerships programs as significant tools in NSERC's suite of Research Partnerships Programs.

- NSERC will continue to support international collaboration and exchanges through its strategic partnerships programs by launching concurrent calls for joint research proposals with foreign partners. Scientific-cooperation agreements are in place with France and Taiwan, and soon with Japan.

— Collaborative Health Research Projects:

- With the launch of NSERC's four new strategic target areas, the former Biomedical Technologies target area will be merged with the CHRP program, which is jointly funded by CIHR and NSERC. The program, which is targeted to improving the health of Canadians, integrates the efforts of natural scientists and engineers with health scientists. In 2012, this program will require the involvement of users of the knowledge being created to ensure a stronger link and impact on the health system, with a focus on efficiencies and use of knowledge to improve the health of Canadians.

Benefits to Canada:
To take advantage of Canada's established excellence in research and innovation, and to build capacity in areas critical to the Canadian economy, NSERC invests in strategic priorities areas for the country. For maximum effect, these investments support a range of integrated activities with the common goal of connecting researchers with end users in order to transfer and exploit knowledge and to increase Canadian prosperity.

Program Activity 3.2 Fund University-Industry-Government Partnerships					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
60	$167.1	60	$160.0	60	$170.2

Program Activity Expected Results	Performance Indicators	Targets
Mutually beneficial collaborations between the private sector and researchers in universities, resulting in industrial or economic benefits to Canada	Increase in the number of industrial partners supporting and participating in university-industry collaborations	Greater than 75 new partners
	Partner satisfaction with research results	75 percent of partners indicating satisfaction through final reports and/or follow-up surveys
NSERC Chairholders Database		

Program Activity Summary: NSERC's programs under this activity foster collaborations between university researchers and industry in order to develop new knowledge and expertise and to transfer this knowledge and expertise to Canadian-based companies.

Subactivities include:

- Industrial Research and Development Internships (IRDI)
- Industrial Research and Development Fellowships (IRDF)
- Industrial Research Chairs (IRC)
- Collaborative Research and Development (CRD) Grants
- Networks of Centres of Excellence (NCE)
- Business-Led Networks of Centres of Excellence (BL-NCE)

Planning Highlights:

— Industrial Research and Development Fellowships (IRDF)

- The Industrial R&D Fellowships (IRDF) program encourages business to hire a postdoctoral researcher for a two-year period to undertake research and development of importance to the company. This program gives the company the opportunity to evaluate the fellow for potential long-term employment and the postdoctoral fellow the opportunity to gain experience in industry. NSERC's regional offices are an increasing part of the plan to more effectively market these PhD graduates to business. The IRDF program is part of the four point plan of the Strategy for Partnerships and Innovation to "Connect People and Skills" by making it more attractive for innovating companies, particularly small companies, to hire PhD graduates from the natural sciences and engineering.

— Collaborative Research and Development (CRD) Grants:

- NSERC's Collaborative Research and Development Grants Program suite will continue to serve as important mechanisms to deliver on NSERC's Strategy for Partnerships and Innovation. **Engage Grants** and **Interaction Grants** will continue to foster new industry-academic relationships. Since the launch of the Engage Grants in November 2009, the demand for this short-term support for new academic-industry relationships focused on solving a company specific problem, has grown significantly (to a projected $10.4 million in 2010-11). Through NSERC's five regional offices working on the ground in the regions, industry participation in Engage Grants is expected to remain high and to translate into ongoing academic-industry research partnerships supported through NSERC's integrated spectrum of research partnership opportunities, such as the Collaborative Research and Development Grants Program.

- The new **Innovation Frontiers** initiative builds upon the successes of university-industry collaborations by supporting large-scale, solution-driven research, involving significant partner leverage and participation. This highly flexible and agile initiative will serve as a driver for enabling industrial innovation in addressing issues of national importance, such as Canada's Digital Economy Strategy and the clean energy sector.

Business-Led Networks of Centres of Excellence:

- A review of the relevance and effectiveness of the BL-NCE program will be completed in 2011-12. A new component was introduced to the program in recent months to encourage higher participation of small and medium-sized enterprises (SMEs): BL-SME Cooperative Funds. This funding was allocated to increase the direct involvement of the SME community in the research and commercialization activities of the Business-Led Networks and supports the NSERC Strategy for Partnerships and Innovation goal of increasing academic-industry partnerships with SMEs.

Benefits to Canada:
The CRD Grants, NCE and BL-NCE partnership programs provide different means for companies to address their innovation challenges and gain access to specialized expertise and highly qualified personnel. Industrial R&D Internships and Fellowships provide training in industry for students and fellows, while also supporting research that enhances the innovation capacity of the host firms. Industrial Research Chairs (IRCs) are significant longer term investments by companies that focus the expertise of internationally recognized researchers on building research and training capacity in areas of importance to the partner company(s). Approximately 80 percent of IRCs work in the priority areas identified in the federal S&T strategy and in *Budget 2008*.

Program Activity 3.3 Support Commercialization					
Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
18	$54.8	18	$36.9	18	$36.9
Program Activity Expected Results		Performance Indicators		Targets	
The transfer of knowledge and technology residing in Canadian universities and colleges to the user sector is facilitated		A set of nine university commercialization indicators collected by Statistics Canada[11]		An increase in the majority of the nine indicators	

Program Activity Summary: NSERC's programs under this activity enhance the capacity of Canadian universities and colleges to transfer knowledge and technology from academic research laboratories to Canadian companies. They accelerate the pre-commercial development of promising innovations and related marketing and patenting activities. They support applied research and collaborations that facilitate commercialization, as well as technology transfer, adaptation and adoption of new technologies. Canadian companies increase access to publicly supported research results and spin-off companies are created. As with NSERC's partnerships programs, federal funding serves to leverage significant amounts of private funding.

Subactivities include:

- Ideas to Innovation (I2I)
- College and Community Innovation (CCI)
- Centres of Excellence for Commercialization and Research (CECR)

Planning Highlights:

— College and Community Innovation (CCI):

- NSERC, together with CIHR and SSHRC, will continue to support collaborative projects with industry in colleges across the country and strengthen the competitiveness of SMEs through innovation. Through *Budget 2010*, the CCI Program budget was doubled, allowing for new activities to be funded. These new program elements (Applied Research Tools and Instruments [ARTI], Applied Research and Development [ARD] and Technology Access Centres [TACs]) provide additional tools to better deliver on the objectives of the program.

[11] Inventions disclosed, inventions protected, new patent applications, patents issued, total patents held, new licenses, total active licenses, royalties from licensing, and total spin-off companies.

- **Innovation Enhancement Grants (IE)** will continue to provide colleges with support to strengthen and demonstrate their applied research capabilities and carry out applied research and knowledge/technology transfer activities where the college has recognized expertise that meets local or regional needs and has the potential to increase economic development in the community.

- **Applied Research Tools and Instruments** will assist with the purchase or development of equipment for applied research.

- **Applied Collaborative Research and Development Grants** will support businesses' collaborative applied R&D projects at colleges.

- **Technology Access Centres** will provide responsive technology and management services to SMEs and conduct applied research projects with businesses.

Idea to Innovation (I2I):

- NSERC, together with CIHR, will explore alignment in program objectives and delivery between CIHR's Proof of Principle (POP) and NSERC's I2I programs. The ultimate benefit will be to reduce the administrative burden on researchers and technology transfer office staff and avoid confusion about which program is more appropriate for projects that cross the mandates of the agencies.

Benefits to Canada:

Canada is among the world leaders in academic research excellence. Transferring and translating this excellence into societal and economic benefit is a high priority for NSERC. Success in these efforts requires not only expertise in knowledge and technology transfer, but also building expertise in entrepreneurship and creating an environment that allows potential business ventures to thrive. The CECR is changing the context for academic technology transfer and commercialization, bringing new strength to an already productive area. The greatly broadened CCI suite supports the continued evolution of applied research and innovation in colleges, enabling colleges to play an even greater role in Canada's innovation system.

Program Activity 4.1 – Internal Services

The following program activity supports all three of NSERC's strategic outcomes.

Human Resources (FTEs) and Planned Spending ($ millions)					
2011-12		2012-13		2013-14	
FTE	Planned Spending	FTE	Planned Spending	FTE	Planned Spending
173	$23.9	173	$22.6	173	$22.6

Program Activity Summary: NSERC and SSHRC share internal services for general administration, human resources, finance, awards administration, information management and technology, and audit services. This common administrative services model has proven highly efficient for the two federal granting agencies. In addition, NSERC has its own corporate services to address the agency's distinct needs in terms of governance, policy, planning, statistics, program evaluation, performance measurement, communications and international relations.

NSERC is working cooperatively with SSHRC, CIHR and the Canada Foundation for Innovation (CFI) in order to improve the coordination of programs, activities and policies. Adopting a more integrated approach to programs and client services helps reduce the administrative burden on researchers and institutions. It also enables the support of crosscutting, multidisciplinary research initiatives designed to address important scientific opportunities and problems that matter to Canadians. The funding organizations are responsible for a number of co-operative funding programs which contribute to Canada's strong international reputation for the support of research excellence and training. Senior executives of the funding organizations, including the Presidents and Executive Vice-Presidents, meet monthly to discuss issues and strengthen their joint efforts in order to address the knowledge, people and entrepreneurial advantages identified in the S&T Strategy.

Planning Highlights:

From 2010-11 to 2011-12, NSERC will:

- continue to meet regularly with CIHR, SSHRC and CFI to ensure an integrated approach to supporting research and improving client service;
- consider the results of the most recent Management Accountability Framework assessment, and address any identified areas for improvement;
- continue to integrate strategic, operational, financial and human resources management considerations when performing business planning activities (e.g., the integration of human resource planning into the annual budgeting exercise);

- develop mitigation strategies identified in NSERC's 2011-12 Corporate Risk Profile (CRP);
- with CIHR and SSHRC and in consultation with the postsecondary research community and other stakeholders, review and update the *Memorandum of Understanding (MOU) on the Roles and Responsibilities in the Management of Federal Grants and Awards* and related policies, including revisions to the *Tri-Council Policy Statement: Integrity in Research and Scholarship*;
- continue to develop NSERC-STATS and use its capabilities to generate a wide range of reporting products that will highlight the results and impact of NSERC's investments;
- continue to lever emerging tools and technologies in streamlining the administration, delivery and reporting of grants;
- enhance capacity and stay at the forefront of the field of performance measurement for S&T investments;
- continue outreach efforts to targeted industry and sector-specific media, as well as industry associations, to highlight the benefits of the Strategy for Partnerships and Innovation (SPI) and to double the number of companies participating in SPI between 2009 and 2014;
- continue to identify new opportunities to connect with industry and key opinion leaders;
- utilize examples, statistics and other quantifiable data to demonstrate program effectiveness;
- increase Canada's awareness of research achievements by leveraging existing relationships with core audiences through the NSERC regional offices, former NSERC Council members and former NSERC prize winners and journalists, to ensure that audiences are reached at national, regional and local levels; and
- increase awareness in industry, particularly SMEs, about the benefits of collaborating with academia.

Integrated Strategic Planning

NSERC continues to advance the integration of human resource planning into its business planning activities, most notably during the annual budgeting activities and in the activities surrounding the provisioning of new programs. During these activities, Human Resources (HR) works with business units to identify human resource requirements and translate these into HR recruitment plans. These, in turn, become an integral part of the budgeting exercise. Moreover, by focusing on building strategic capacity throughout common administrative service units, NSERC focuses on enabling better integrated planning and reporting in areas such as finance and human resources.

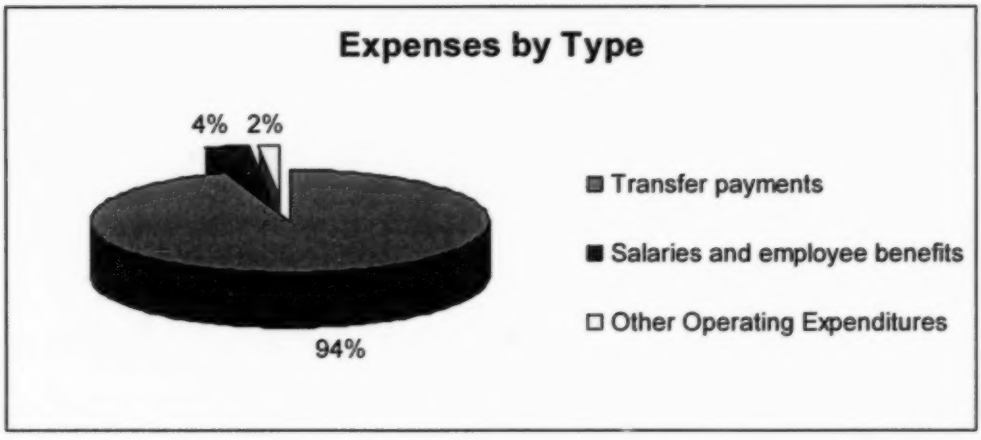
Section III – Supplementary Information

Financial Highlights

The future-oriented financial highlights presented within this *Report on Plans and Priorities* are intended to serve as a general overview of NSERC's financial operations. These financial highlights are prepared on an accrual basis to strengthen accountability and improve transparency and financial management.

The future-oriented statement of operations can be found on NSERC's website.

Future-oriented Condensed Statement of Operations For the Year (ended March 31) ($ millions)	
	Future-oriented 2011-12
Total Expenses	1,074.4
Total Revenues	—
Net Cost of Operations	**1,074.4**



Total expenses are projected to be $1,074 million in fiscal year 2011–12. The majority of these expenses are for transfer payments ($1,018 million) in the form of grants and scholarships related to departmental programs. The balance of spending is made up of salaries and employee benefits ($38 million) and other operating expenses ($18 million). The latter two types of expenses are required to support departmental programs and other corporate obligations.

Supplementary Information Tables

All electronic supplementary information tables found in the *2011–12 Report on Plans and Priorities* can be found on the Treasury Board of Canada Secretariat's Web site at: http://www.tbs-sct.gc.ca/rpp/2011-2012/info/info-eng.asp.

- Details on NSERC's Transfer Payment Programs
- Greening Government Operations (GGO)
- Internal Audits
- Evaluations